

IN THE MATTER OF AN INQUIRY
Pursuant to Section 1 of the INQUIRY ACT
Into Safety of Loading Procedures
Used by British Columbia Ferries

R E P O R T

COMMISSIONER:

The Hon. Nathan T. Nemetz, C.C., Q.C.

COMMISSION COUNSEL:

Mr. Paul Williamson

Report Date: 11 September 1992

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THE HON. NATHAN T. NEMETZ, C.C., Q.C.

COMMISSIONER

MR. PAUL WILLIAMSON

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**Ms. C.J. ASKEW,
P. CURTIS, Articled Student,
L.B. McGRADY - 28.08.92**

*Appearing for the British
Columbia Ferry and Marine
Workers Union*

G.C.E. FULLER

*Appearing for British Columbia
Ferry Corporation*

**D.R. EYFORD,
V.R.K. ORCHARD**

*Appearing for Captain
Norman Thomas Mains*

J.D. BUCHAN

*Appearing for First Officer,
Angus Andersen*

N.E. DAUGULIS

*Appearing for Second Officer,
Janice Lloyd*

J.L. STRAITH

*Appearing as Amicus Curiae for
the Askew family.*

Hearing Dates: August 24 - September 1, 1992

TO: ***The Honourable Glen Clark
Minister Responsible for the British Columbia Ferry Corporation
Legislative Buildings
VICTORIA, B. C.***

DATE: ***September 11, 1992***

Dear Sir:

For over 30 years the citizens of this province have been served by a publicly owned ferry service. The system now owns 40 vessels. It has 24 routes available not only to the British Columbia travelling public, but also to the ever-increasing number of visitors from Eastern Canada, the United States and abroad. Last year the British Columbia Ferry Service carried over twenty million passengers and eight million vehicles - both privately and commercially owned. It provides employment to over 3,500 persons. On a typical day in the busy summer season it makes over 500 landings at 43 terminals throughout British Columbia. It is one of the largest ferry systems in the world.

In 1985 its Board of Directors adopted a mission statement that stated:

The mission of the British Columbia Ferry Corporation is to provide effective, dependable and safe coastal ferry transportation services in the most efficient manner.

In addition I was told that the Corporation is now studying plans for building new and larger vessels to cope with increasing loads in order to take advantage of new technologies, and thus improve safety provisions in the existing and expanded fleet.

THE INCIDENT - AUGUST 13, 1992

At about 8 AM on the morning of August 13, 1992, one of the Corporation's vessels, the **Queen of New Westminster**, berthed at the Departure Bay (Nanaimo) Terminal. A few minutes later, after unloading the cars on the ship, the shore and vessel crew began the loading of cars that had been waiting to board. Just before completion of the loading of the upper level deck, a van carrying Mr. and Mrs. Askew, their two daughters, their grandmother and a friend travelling with them, started to cross the ramp in order to board the ship. However, at that moment, the vessel moved forward. Mr. Askew, in an affidavit filed at my request, then described what happened, and I quote: "I watched the ramp come apart. I could not go backwards, I could not go forward. That at this time my wife started screaming and then I remember falling forward and the vehicle rolling over on its back. That I remember hanging on to the steering wheel and I am sure that my foot was on the brake trying to stop." But it was to no avail -- the van plunged into the water and he remembers nothing more until being treated on shore by paramedics. Tragically, Mrs. Askew and one daughter died. Mr. Askew was seriously injured, and his remaining daughter is still in hospital. The other occupants were miraculously saved.

The government appointed this Inquiry Commission. I quote its terms of reference:

1. To inquire into and report on the safety of loading procedures for vessels within the British Columbia Ferry Corporation fleet.
2. To inquire into and report on the incidents at the British Columbia Ferry Corporation Nanaimo Ferry Terminal on or about August 13, 1992, insofar as these incidents disclose flaws or faults in the loading procedure referred to in Section 1 of these Terms of Reference from the safety standpoint.

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3. To recommend improvements to the loading procedures referred to in Section 1 of these Terms of Reference, or the maintenance of current practices, from the safety standpoint.

Commission Counsel and I travelled from the Tsawwassen Terminal to Departure Bay in order to observe closely the operation of loading and unloading vehicles at both terminals. After this viewing and a week of preparatory work, including the interviewing of some 30 potential witnesses, I called these hearings to order on Monday, August 24, 1992. I am obliged to the Federal Court of Canada for providing their large courtroom for this Inquiry.

In opening I said, and I paraphrase:

Considering the importance to the citizens of British Columbia, the thousands of visitors who use our ferries, and particularly to the Askew family, I have decided that this inquiry will be open to the public. I must at the outset remind all counsel that this inquiry is but one of several that may examine various facets arising from the tragic events of August 13th. Among the other prospective proceedings are:

- (1) A Coroner's Inquiry;
- (2) An investigation by the Royal Canadian Mounted Police;
- (3) A Coast Guard investigation;
- (4) A Transportation and Safety Board Accident investigation;
- (5) A Civil suit.

The purpose of a civil suit, if commenced on behalf of the deceased and injured members of the family, would be to establish that the damage or loss suffered by the family was caused by the negligence of one or more parties and to assess damages against the negligent parties and to compensate the family for its damage and loss.

I remind all interested parties or their representatives that this is not a civil suit. Rather, this is an inquiry under the *Inquiry Act* of British Columbia focused not upon a single incident, but on the safety of loading and clearance procedures. Any lawsuits arising from the incidents of August 13th are for the Courts to decide.

I asked for cooperation of all counsel in order that I might be able to bring down my recommendations as expeditiously as possible. In this way, I hope that we may reassure the citizens of this province that on the implementation of these recommendations, the ferries will operate at a maximum level of safety.

I then considered the applications for what in law is called "standing" in respect of counsel appearing before me. I granted standing pursuant to Sec.4(1) of the *Inquiry Act* to counsel listed on the front page of this report. However, because of the special circumstances and obvious concerns of the Askew family, I also granted status akin to amicus curiae to their counsel, Mr. J. L. Straith, whose offer to assist me and Commission Counsel I accepted. Furthermore, I asked Mr. Straith to attend all hearings, make suggestions to Commission Counsel and if he wished, to present a submission at the conclusion of the Inquiry. In addition, if Mr. Askew was physically capable, I asked him through his counsel to prepare an account, as he remembered it, of his attempt to board the Queen of New Westminster. In fact, he did present his account and I have quoted from it above.

I next dealt with the application by Mr. Burnett acting for certain television stations. After hearing counsel, both for and against the application, and their submissions, I decided to allow partial televising on condition that (a) a single non-glare and noiseless camera would be placed behind a glass screen in the back of the courtroom in what, in this court, is used as a translator's booth; and (b) that Commission Counsel would tell me whether the witness was agreeable to allowing his or her testimony to be televised. If the answer was yes, the camera could proceed to televise; if the answer was no, then the camera would not be allowed to operate during that witness's testimony. All of Vancouver's daily newspapers had reporters

present, thus all the proceedings were well reported. Reporters from a number of television and radio stations also attended these hearings. I thank the publicly spirited citizens who wrote to me and expressed their concerns about the calamitous events that occurred on August 13, 1992. I advised them that many of their suggestions were either incorporated in Commission Counsel's questions or are dealt with by me in some of the recommendations in this report.

I will now review the evidence of those witnesses who testified at the Inquiry and will then discuss the implications arising from this evidence. Finally, I will set out my recommendations.

Captain Michael Gray

The first witness in these proceedings was Captain Michael Gray, who is a senior captain and manager of the southern-most operations for B.C. Ferries. He has experience at sea since 1964 and along the B.C. coast since 1973. He testified generally with respect to the ferry system, and he produced documents, entered as exhibits, which stated that the Corporation places "safety" at the top of its list of corporate values.

The most pertinent part of the evidence from Captain Gray was his outlining of the ship clearance procedures. Before I review what he had to say about those procedures, I should make some general comments. First, most of the major vessels in B.C. Ferries' fleet are multi-car deck vessels. Hence, when they disembark and embark vehicles, there are two ramps over which motor vehicles are able to drive from the shore onto the vessels. In most major terminals there is also a third ramp which is a gangway for foot passengers only. In any clearance procedure, it is necessary that the master of the vessel know that all three of these loading ramps are free and clear of the vessel before he or she issues the command which will result in the ship leaving the berth.

In his review of the Marine Operations Procedures, Captain Gray pointed first to Article 2.14.5.3 which states:

1. The lower vehicle ramp and apron are NEVER to be raised from the ship's deck when the upper ramps are still connected to the vessel.
2. The Lower (Main) Ramp Operator is to ensure that all upper ramps are clear of the vessel before relaying the "All Clear" signal to the Chief Officer.
3. When all upper ramps are clear of the ship's deck, the Lower (Main) Ramp Operator will lower the barrier and give the "All Clear" signal at which time he can raise the apron from the deck.

Thus it can be seen that the lower or main vehicle deck access ramp is the key to the clearance procedure. If that ramp is NEVER (the word is capitalized in the standing order in the Marine Operations promulgated by the Ferry service) to be raised from the ship's deck when the upper ramps are still connected to the vessel, then ships' officers should be able to be certain that once that lower vehicle ramp apron is raised, the other ramps have been cleared.

Captain Gray took the inquiry through the specific ship-shore clearance procedures as set out in Article 2.14.8 of the Marine Operations of B.C. Ferries. They are as follows:

SHORE CLEARANCE PROCEDURES

3. The Control Tower shall ensure that the foot passenger ramp is up and clear of the vessel. This must be confirmed by a verbal confirmation from the Passenger Ramp Operator.
4. The Control Tower Operator shall ensure that the upper vehicle ramp apron is up and clear of the vessel and the barrier lowered. This must be confirmed by a verbal confirmation from the Upper Ramp Operator.
5. Upon completion of the above steps, the Control Tower Operator will relay all further clearances of the vessel through the Lower Ramp Operator by telephone/radio.
6. After receiving final clearance from the Tower and before relaying clearance to the vessels, the Lower Ramp Operator will:
 - (a) Visually check that the foot passenger ramp is up and clear.
 - (b) Visually check that the upper ramp apron is up and clear.
 - (c) Lower ramp barrier.
7. The Lower Ramp Operator will now inform the Lower Deck Loading Officer that the shore is clear and await instruction to raise the apron.

SHIP CLEARANCE PROCEDURES

8. Upon receipt of the above shore clearance, the Lower Deck Loading Officer will:
- (a) Visually check that the foot passenger ramp is clear of the vessel.
 - (b) Visually check that the upper vehicle ramp is clear of the vessel.
 - (c) Raise the lower ramp apron. Let go lines and transmit clearance to the Master. This should be carried out in a clear and unmistakable manner identifying himself as being the loading officer and that the vessel is clear to sail.
 - (d) Instruct lower ramp operator to raise the ramp.
 - (e) Bells or buzzers may be used in addition to, but not in lieu of, the voice communication.

These procedures set out a 3-stage system to ensure that when the lower deck vehicle ramp apron is lifted clear of the vessel, the two upper ramps have already been cleared. It can be seen that the operator of the control tower is to ensure that the foot passenger ramp and that the upper vehicle ramp apron are clear of the vessel before informing lower ramp operator that the ship is clear. The lower ramp operator is to do the same thing before so informing the lower deck loading officer on board the vessel.

Finally, the vessel's lower deck loading officer, the only person with the authority to communicate final clearance to the bridge of the vessel, is

required to check visually that both the foot passenger ramp and the upper vehicle ramp are clear of the vessel before he or she transmits a final clearance to the Master of the ship.

I should not leave this testimony, without noting that Captain Gray also pointed out Article 2.9.9 of the Marine Operations Procedures, which deals with security of vessels loading and discharge traffic. It states in paragraph 7:

In vessels with enclosed vehicle decks, or other vessels where the Master cannot see the vehicle deck from the wheelhouse, clearance to sail will be given to the Master by the Chief Officer by telephone

...

It can be seen then, that the Chief Officer, who is second in command on the vessel, is the only person authorized to give the final clearance to the Master of the vessel, and further, he or she is to give that clearance by telephone.

Captain Gray also testified that the jurisdiction of the ship's Master extends to the in-shore hinge of the vehicle ramp while the ship is in the berth. This provision, set out in Article 2.14.2 of the Marine Operations Procedures, would seem to answer the question of where the shore personnel's jurisdiction ends, and where the ship's crew's jurisdiction commences.

I should also observe that there are two different "clearances". The term "All Clear" when given from the tower means that there will be no further traffic sent to the vessel. This does not relieve the Lower Deck Loading Officer of the responsibility for giving the "Final Clearance" for the vessel. Final clearance is the message conveyed to the Master or Commanding Officer of the vessel and means that all connections with the berth have been severed and the vessel is free to sail.

Captain Gray also gave evidence about the design of B.C. Ferries' ships. This is significant because certain international conventions, following the disaster of the **Herald of Free Enterprise** in the English Channel in 1987, required ships to have an indicator on the bridge to confirm that doors in the hull of the ship had been closed -- particularly doors on car decks. However, there is an important distinction between ships designed as the **Herald of Free Enterprise** and the ships of the B.C. Ferries fleet which ply the major routes between Vancouver Island and the mainland. The doors on the former are an integral part of the hull. As such, it is essential that they be watertight. The doors on the B.C. Ferries are not an integral part of the hull. Should water enter the car deck, it will run down and through ports designed for the purpose and drain over the side. Such water will not detract from the buoyancy of the vessel.

Captain Gray also testified about the way he, as a manager of operations, monitors the performance of his employees. His evidence was that at the two major terminals which are his responsibility, at least 4 times in the ten days prior to August 13th he had monitored radio communications. This is his method of ensuring that the procedures set out in the Operations manuals are followed. His monitoring disclosed that at Tsawwassen and Swartz Bay those procedures were being followed. He also testified that when interviewing Second Officers or Chief Officers who are eligible for promotion to the next level, clearance procedure questions are a normal part of the interview. Finally, he testified that within B.C. Ferries there is a person with the title "Advisor on Operational Safety and Technical Standards", and that as part of his job he goes out into the fleet to assess operational safety and confirm that appropriate procedures are being followed. His visits to various vessels and terminals are random and unannounced.

Captain Gray also testified on the frequency of fire and boat drills, and as to the usefulness of lifeboats as rescue vessels. He pointed out that some of the major vessels of the B.C. Ferries fleet are fitted with fast inflatable power boats. These boats, he said, are on the vessels where there are life rafts rather than lifeboats and they are primarily intended to assist the life rafts to

clear the vessel in the event of an emergency. He also said that the Corporation has considered adding a fast rescue boat to all major vessels but that there is some difficulty as to the issue of where those boats should be installed.

Finally, Captain Gray testified that insofar as he knows, there is no such thing as a "conditional clearance" and that it would be a violation of procedures should a tower inform a main ramp operator that the vessel was clear after certain vehicles, yet to board the ferry, were loaded.

Captain David Bremner

The second witness to testify was Captain David Bremner. Captain Bremner is the retired Superintendent of Ship Safety for the Canadian Coast Guard and is an extra Master, the highest qualification that one can receive in the British Merchant Navy. He was called to testify because he chaired an operational review of British Columbia Ferry Corporation which had been commissioned in April of 1992 at the request of the President of B.C. Ferries. The panel included the General Manager of the Corporation, the President of the B.C. Ferry and Marine Workers Union, the Regional Manager of the Ship Safety Branch for the Canadian Coast Guard, and a retired B.C. Ferries Master. The panel was asked, *inter alia*, to assess corporate policy and procedures governing vessel operations, and standards of proficiency, training and professional development of personnel responsible for vessel operations.

This evidence was called because a number of the matters reviewed by the panel touched directly on issues before me. The report was apparently filed in this Inquiry two days before it was delivered to the Board of Directors of B.C. Ferries. It has value for a number of reasons including the fact that it was commissioned and conducted prior to the August 13th incident, and because both the General Manager of the Corporation and the President of the Union were included on the five person panel. These persons concluded, as the report states at page 4, that the Ferry Corporation complies with all appropriate national and international standards, that the ferries meet or exceed all applicable

Canadian Coast Guard regulations and recommendations of the International Maritime Organization, and that these factors highlight the "professionalism of those who operate the fleet". At page 5, the panel stated that the "report, although mainly safety oriented, is submitted with the intent of motivating and assisting British Columbia Ferry Corporation in maintaining its worldwide reputation as a safe and efficient ferry company ...".

The panel made a number of recommendations of importance to this Inquiry. These include the suggestion that the number of safety audits of deck operations may not be sufficient (page 10); that schedules should be reviewed to ascertain if some flexibility exists to make them less rigid (page 12); that senior management in consultation with terminal and shipboard personnel should develop a suitable communications protocol (page 19); that hand-powered oar propelled lifeboats are not suitable for person overboard situations (page 42); that all vessels fitted with hand-powered lifeboats should be fitted with a fast rescue craft (page 43); that the Corporation and the Union should consider a return to a system where casuals are assigned to a particular department and that the seniority lists be limited to that department (page 50); that there is a need for video coverage of car decks and overhead walkways (page 55); and that standards for internal communications should be established particularly with respect to older vessels.

There are many other recommendations in this 61 page document and I commend the Corporation and the Union for cooperating in such an endeavour, a positive approach about which I will have more to say later.

In his viva voce testimony, Captain Bremner testified that he was disturbed about recent incidents, but that during the course of his work on the Operational Review, he felt that all the people talked to by the panel were most concerned with safety. He testified that he was impressed by the dedication not only of the officials within the company, but of the crews of the vessels and the people in the terminal.

The Inquiry then heard from three witnesses who described the ramp operation, the tower operation, and the duties of both the Master and Chief or lower deck loading officer on the vessels insofar as clearance procedures are concerned.

Mr. Donald Dunlop

Testimony concerning ramp operation was given by Mr. Don Dunlop, an employee of B.C. Ferries at the Tsawwassen Terminal. Mr. Dunlop is an experienced ramp operator and the person responsible for training new employees, as well as conducting refresher courses, with respect to ramp operation at the Tsawwassen Terminal. I was impressed with his knowledge and his ability to communicate it.

Mr. Dunlop gave a clear description of the operation of ramps. He pointed out that the ramp is actually 3 components, a ramp which is hinged to the land and is raised or lowered with the assistance of counter-weights, an apron at the sea end of the ramp which itself can be raised or lowered hydraulically, and short "fingers" at the ship end of the apron which facilitate the transfer of vehicles from the apron to the vessel. He described the ramp operator's house or shack within which are the controls for raising and lowering of the main ramp, and raising and lowering the apron.

He explained that the weight of the ramp is supported by steel pins which must be inserted on either side of the ramp before vehicle traffic is permitted to move. He said that during ramp adjustments which are necessary from time-to-time during the loading of a vessel, those pins must be removed and then reinserted -- so that traffic must be stopped during a ramp adjustment. He also explained that the hydraulic controls of the apron have two positions: "float" and "lock". He testified that when the apron is on the vessel during loading operations, the hydraulics for the apron are in the "float" position. This enables the apron to move up and down as the boat moves as a result of tide, motion of the sea, or as a result of movement of vehicles.

Should the system be moved into the 'lock' position, the apron will be locked in the position it is in when that button is pressed.

I questioned him as to whether an apron so locked would hold the weight of a vehicle. Mr. Dunlop's evidence was that he understood that the apron was not designed to hold a vehicle while in the 'lock' position if it were not supported at the sea end by the deck of the vessel. However, he had observed a heavy vehicle on an apron at Tsawwassen, with no ship in the berth, and noted that the apron held its position.

Mr. Dunlop described his training procedure. He made it very clear that in training ramp operators he emphasized the importance of clearance and what he called "the 4 point rule". He said that each ramp operator, on receiving a clearance and passenger count from the tower operator, was to check four things before he passed the clearance on to the chief deck loading officer. Those four things were:

1. Check that the upper passenger gangway is free and clear of the ship;
2. Check that the upper car deck apron is free and clear of the vessel;
3. Check that the fresh water line, which is attached to the vessel for replenishment of fresh water during every turnaround, has been removed; and
4. Check that the ship's safety line has been removed.

Mr. Dunlop testified that only after having gone through that 4 point check was the main ramp operator permitted to pass the clearance on to the ship's officer in charge of the lower car deck.

This witness also filed as an exhibit in these proceedings, the B.C. Ferries "Ramp Operation Handbook" which is a companion piece to an educational video tape. This handbook describes the principles and operations of the loading ramp and sets out the responsibilities of the ramp operator. Mr. Dunlop took us to page 15 of that document which contains the following paragraph:

On receipt of clearance from the tower, or other authorized source, that the last passenger and vehicle is aboard, the ramp operator will check that upper ramp apron and passenger ramp apron are clear of the ship, and that the water hose and ship's safety lines are disconnected and then lower the ramp barrier. He/She will then advise the Chief Officer with "All Clear" and receive instructions to raise the lower ramp apron from the deck. The vessel is not allowed to depart without receiving this "All Clear" message.

Manifestly, this paragraph sets out what Mr. Dunlop described as the 4 point check.

The last two pages of the Ramp Operation Handbook are entitled "Certificate of Review". This certificate is to be filled out by the supervisor and by the trainee. It sets out that the trainee has successfully passed the review of the knowledge and skills required for a task of the ramp operator. Both the supervisor and the trainee sign and date the document. One of the two pages is forwarded to the Corporation.

I commend the Corporation for using this experienced and articulate employee as a training officer.

Mr. Tom Warren

The next witness, Mr. Tom Warren, is a tower operator at B.C. Ferries terminal at Horseshoe Bay. He has filled this position for about ten years.

He testified that at Horseshoe Bay the tower operator can see the upper car deck loading aprons, but can only see the lower ones with the assistance of a video monitor. He also noted that at Horseshoe Bay there are no passenger gangways and that foot passengers embark and disembark on the car decks.

Mr. Warren described the duties of the tower operator. He said that the tower operator is responsible for controlling and directing traffic, for communicating with the ships, for clearing dangerous goods, for initiating ships' clearances, and that as well they handle calls from the public. Asked by Commission Counsel what he felt about the workload, he replied "It's busy, but in the busy times, you have two people up there".

With respect to clearance, he testified that when he sees the last vehicle:

I would then call the main car deck on the telephone and let the terminal attendant know what the last car is and give him the passenger count.

The terminal attendant, he said, was operating the main car deck ramp. He said that there is never a circumstance at the Horseshoe Bay terminal when the lower ramp is lifted from the vessel while the upper ramp is still on the vessel. He did say however, that there have been occasions in the past when there was not enough room to raise the upper apron completely because the back of a car was hanging over it. Although these incidents were rare, when they happened he let the main ramp operator know. The upper apron was lifted only a couple of inches and raised to its final position once the vessel started

pulling out. He also testified that this infrequent practice has been stopped since the incident at Departure Bay.

On the subject of wireless radios, or walkie-talkies, Warren testified that they presented problems. He said that the batteries go dead on occasion, and that the transmissions sometimes break up or are scattered. He confirmed, however, that he was able to communicate by telephone with both the upper and lower ramp operators.

Captain Stephen Poole

The next witness was Captain Stephen Poole. Captain Poole is a Chief Officer with B.C. Ferries qualified to be a Master. He frequently relieves as a Master, and was therefore able to testify on both the role of the Master and of the Chief Officer in clearance procedures. He has worked for the Ferry Corporation since 1971.

Testifying first as to the role of the Chief Officer, he confirmed his understanding that while in the berth the vessel's jurisdiction extends to the in-shore end of the loading ramps. He said that as Chief Officer it was his responsibility and his practice to ensure that nothing happens to the ramps without his express approval -- that is to say, they are neither put up nor down unless he is made aware that they are about to be raised or lowered.

He testified that when he is told by the main ramp operator that the vessel is clear to sail, he habitually acknowledges that message verbally with the ramp attendant. He said that once he is sure the passenger gangway and the top vehicle deck apron are clear of the vessel, which he confirms visually by walking off the ship onto the ramp, he steps back on the vessel, instructs the seamen to disconnect the water line and the ship's line and instructs the ramp attendant to raise the lower car deck apron. He testified specifically that he visually checks the same four things that were set out by the previous witness,

Mr. Dunlop, as the 4 point check for the ramp operator. Finally, he testified that when he's satisfied that the vessel is free of the dock, he telephones the wheelhouse to inform the Master that the vessel has been cleared on all decks and that all lines are free.

Captain Poole also testified that on the vessel, officers and crew have had the habit of repeating the messages back and forth to one another.

On the subject of knowing that all ramps are clear of the vessel, he testified that on the watches he works, it is the duty of the Quartermaster to attend the vessel's side of the foot passenger walkway. This has significance, because it is the Quartermaster that is at the ship's wheel on the bridge when the vessel departs the terminal. Thus, as the Quartermaster remains at the upper passenger walkway until loading is finished, the walkway is free of the ship and the vessel's gates are closed and locked, he is able to report to the wheelhouse and inform the Master, before he takes up his duties, that the foot passenger walkway has been cleared.

Testifying regarding the role of the Master, Captain Poole pointed out that at the time of final clearance, the Master is at the forward end of the ferry and cannot see the car deck aprons. By walking out onto the bridgewing, he can see the passenger gangway and therefore, on receiving clearance, Captain Poole checks visually to ensure that the passenger walkway is clear. He then checks the television monitor to ensure that the lower car deck is cleared. He also testified that before leaving he gives one prolonged blast on the ship's whistle. However, he noted that it is unlikely the whistle would be heard by the officers on the car decks. In particular, he said the Chief Officer is standing down at the very bottom of the aft deck where there is a great deal of noise.

On the subject of the closed circuit television monitors, it was Captain Poole's view that they would be more useful if they were in colour because, he said, it would give "more definition". He said the black and white monitors are subject to problems of "white-out from sun glare".

Finally, asked what recommendations he might have that would improve the system, he said that the problems with the walkie-talkie radios are such that he would like to see all clearance procedures done through fixed land-based line phones. He further said that he would like to see the operation of both the upper and lower ramps in the hands of a single person. I will return to this point as there was some subsequent evidence regarding such a scheme.

In my opinion, Captain Poole delivered clear and precise testimony on the operations he described.

THE NANAIMO INCIDENT

Over the next two days of testimony, the Inquiry heard from eight witnesses directly involved in the August 13th accident at the Departure Bay Terminal. I note that all these witnesses testified pursuant to a subpoena and that all of them invoked the statutory protections of the *Canadian Bill of Rights*, *The Charter of Rights and Freedoms*, *The Canada Evidence Act* and the *B.C. Evidence Act*. I am informed by Commission Counsel, however, that all of these witnesses cooperated fully and in no way hindered investigations or preparation for the giving of testimony.

Ms. Diane Marrs

The first witness was Diane Marrs, a terminal attendant at the Departure Bay Terminal. She testified that she rotates her jobs so that from time to time she operates the main car deck ramp and apron, the upper car deck ramp and apron, the overhead walkway, and that she directs traffic to the appropriate approaches. She said that usually she works 10 days on one position and then rotates to the next. She has been doing this since 1986.

On August 13th, 1992, she was in the "splitter's position" which means that she was dividing the traffic and sending it to either the lower main car deck, or to the upper deck. Asked about the responsibilities of the main ramp operator once she has received clearance from the tower, this witness had no difficulty setting out her responsibilities as I have noted them above and as they are described in the Ramp Operation Handbook.

She testified that there is an idiosyncrasy with the **Queen of New Westminster** when it is in the berth at Departure Bay. She said that the upper vehicle ramp apron cannot be raised to its full upright position because the end of it would strike the aft portion of the deck immediately above the upper car deck. I will return to this issue later because there is further evidence on this point. I add, nevertheless, that she did testify that despite that fact she has always been able to satisfy herself that the ramp was off the deck before passing on a final clearance.

In fact, she testified she was particularly careful about that because some 5 or 6 years ago she was involved with a premature departure when there was a vehicle on the upper car ramp and she had to run out and stop that vehicle. She was able to do so and an accident was avoided, but as a result of that, she is extremely careful about clearance procedures.

She testified that on August 13th during the unloading of the **Queen of New Westminster** there had been a stalled semi-trailer which delayed the disembarkation of vehicles. She said, however, that was not an unusual incident. Indeed, she said that on that day there was nothing unusual about the loading procedure until the accident.

She testified that when the last vehicle had been sent to the ship, she closed the barrier to prevent further cars from entering the ramp and started to walk toward the coffee shop. It was at that point that she heard the upper ramp operator on the radio stating that he had not cleared the upper deck and

when she looked, she noticed that the ship was starting to pull away and she could see the fingers from the upper car apron starting to come down.

When she realized that a vehicle had fallen into the water, she ran to the main ramp and began to lower it toward the water as a means of facilitating the removal of people from the water. However, on being told that there was a person underneath that ramp, she stopped lowering it, replaced the supporting pin, and threw a life ring into the water. She then went over to the adjoining berth and lowered that ramp and apron to water level. She testified that this enabled B.C. Ferry employees to swim over to the ramp with one of the people in the water and they were able to assist in bringing that person up the ramp.

Finally, she testified that when she operates the main ramp, she sometimes hears a clearance from the tower which will give a passenger count and say that "you are clear as soon as the upper ramp is clear". She testified that when happens, she waits for those cars on the upper ramp to clear and does not do anything until the upper apron "goes up".

Mr. Clinton O'Hara

The next witness was Clinton O'Hara, the upper ramp operator on August 13th. This young man is a student and was in his third summer working for B.C. Ferries at the Departure Bay Terminal. He was trained to operate the ramps when first hired in 1990. He described it as a five day course. He also testified that when he returned the following summer he was given a one day familiarization. It also happened that because of his father's profession, he had some practical knowledge of hydraulics aside from what he had learned at B.C. Ferries.

He was able to testify as to the controls available to the upper ramp operator. He understood the significance of the hydraulic lock button.

He said that when he started work on the morning of August 13th at 6 AM, he was feeling well and had been operating the upper car deck ramp for the previous four days. This had included several loadings for the **Queen of New Westminster**. He agreed with previous evidence that when the **Queen of New Westminster** is in dock, the upper car apron cannot be lifted all the way, but he said that it can be lifted "anywhere from 7 to 8 feet off the deck" and said further that "it's definitely off the deck".

On the morning in question, he had received the message from the previous witness that the last car had gone up. While loading the final 6 cars, he said that 4 had gone onto the ship when he observed that the vessel was beginning to move. His attention was drawn to the rust on the ship's deck which is normally underneath the apron. When he realized that the ship was moving, "I could do nothing about jumping in front of it (the van) so I hit the hydraulic lock button on my controls that locks the hydraulics". He said that he then jumped out in front of the sixth car and stopped it. He called on his radio that he had not given clearance, saw the van fall, and radioed immediately that a van had fallen into the water.

He then went down to help with the rescue. While there, he looked up and observed that the apron was still in position "relatively where it should be when it's aboard the ship". This confirmed for him that he had locked the hydraulic system because he said that if he had not locked it, it would have "fallen right down".

Mr. Ed Koloszko

The next witness was Ed Koloszko, the seaman who was stationed at the ship side of the upper car deck apron. He is an experienced seaman who had served from 1971 to 1976 in the Armed Forces. He testified that the ship's crew on the **Queen of New Westminster** on August 13th, 1992 had been sailing together as a crew since July of 1991. There had, of course, been some

changes but fundamentally it was the same crew with the same Master, Chief Officer and Second Officer -- although on this day, the Chief Officer was a relief Chief Officer.

He noted that the Chief Officer had relieved on this crew a number of times in the past two months and that he was familiar with that particular Chief.

He confirmed the role of the Quartermaster, a role which he sometimes filled, and the practice for that person to remain at the upper passenger gangway until it is free and clear, to lock the ship's gates, and then to report to the Master in the wheelhouse.

He also testified that the Second Officer, during loading procedures, was responsible for loading the upper car deck. He said that the Second Officer generally remained at the upper car deck until it was almost loaded, but that when it was apparent there were only a few more cars, she would return to the bridge to take up her duties involved with the departure of the vessel. (I pause to note here that the procedures in effect August 13th, 1992, did not require the Second Officer to remain at the upper car deck until the apron was free and clear.)

Mr. Koloszko testified that on August 13th the Second Officer remained until the loading of the upper car deck was almost complete. He said there was a lull in the traffic -- that is to say, there was nothing on the ramp when the Second Officer proceeded to the bridge. He was left to load the remaining vehicles that would be sent up and in this case had asked for about half a dozen vehicles.

He testified that the extra vehicles arrived, that he had loaded about 4 of them, when his attention was caught by a scraping noise which turned out to be the metal apron fingers on the deck. He realized at that time that the ship

was moving out of the berth. He has no recollection of hearing the ship's whistle.

He immediately began to scream and gesture at the van to back up and then ran for the ship's telephone which was within 5 or 10 feet of where he was standing. He called the bridge and screamed into the phone to stop the ship -- that there was a vehicle on the ramp. He then dropped the phone and reached for a life ring for, he testified, "I realized I believe in my heart that at that time it was too late". He saw an elderly woman fall from the van on the passenger side and then watched the van go over the edge of the ramp and saw her fall to the water. He thought that the ramp folded or dropped somewhat.

Mr. Koloszko saw the vehicle submerge in the water but then turned his attention to the gates on the vessel because passengers on the upper car deck were starting to move back to see what was happening. He closed and locked the ship's gates and proceeded to his emergency boat station.

He said that the normal practice with a person overboard would be to launch the emergency lifeboat and that as he had a position in that boat, he headed for the emergency boat even before he heard the general alarm sounded.

On the subject of the rescue boat, a standard lifeboat propelled by oars, he testified that they do boat drills twice a month. He said that while on his way to the boat he heard the alarm and boarded the rescue boat on the promenade level to take up his position as bow man. He said there were some problems launching the ship's boat which involved a tangled line which he solved by pulling a release pin to free the boat from that line, and secondly, he noted that one of two of the devices which attach the ship's boat to the davits released but the other did not. This was also corrected by someone pulling a quick release mechanism.

The crew then commenced to row the boat to the vicinity of the berth where the van and people were apparently in the water. He said that the

rowing went as well as could be expected for a heavy vessel subject to wind and tide action.

He also testified that he had experience on other B.C. ferries which have a fast rescue boat. He noted that they are quicker to launch, and that they would have got the boat crew to the scene of the incident more quickly. However, he testified that he did not know whether that would have made any difference to the people in the water in this particular instance.

On the subject of communication on board the **Queen of New Westminster**, he testified that the telephone from the upper car deck permits "relatively clear" communication with the bridge. But, he said, from the lower car deck it is quite a bit noisier and that he finds that the **Queen of New Westminster** is "considerably noisier" than other vessels of the same class.

He also testified that the officer on the lower car deck has a buzzer which he can use to buzz the bridge as well as a telephone. However, there is no such buzzer on the upper car deck. He testified that if there had been a buzzer, he would have given the emergency signal -- 5 short buzzes -- rather than telephone because he thought that would enable the Master to stop the ship's engines more quickly. However, once again, he could not say whether in this particular case it would have actually prevented the accident.

An experienced seaman, he testified that the Master on this watch was a conscientious and professional individual who insisted on necessary drills. He also said he was satisfied that the procedures which were to be followed on the ship had been clearly laid out. He gave, I concluded, clear and cogent testimony.

Alison Graves

The next three witnesses were the key persons in the clearance procedures in Nanaimo on August 13th, 1992. The first was the tower operator, Alison Graves. She is a ticket agent and first began familiarization with the tower in 1990. She worked only a very few days in the tower in that year, and then on two different occasions in 1991.

In March of this year, she took a formal tower operator's course and the training manual for that course was filed as an exhibit in these proceedings. The course lasted 3 days.

She agreed that when she took the tower operating course, she already had a good idea because she had worked previously as a backup person in the tower. Commencing July 5th of this year she worked fulltime in the tower until August 13th. During that period she worked as both the main or inside person in the tower and as the assisting or outside tower operator. She described the tower as a small room on top of the administration offices. She said that from the tower she can see the bridge which carries automobiles to the upper car decks but she cannot see the upper car deck aprons during the loading procedures. However, she can see when the passenger gangways are cleared and stowed in their secure positions.

Ms. Graves gave an extensive description of the responsibilities of the tower operator. These include answering questions the terminal attendants have, controlling the traffic inside the lot and assigning lanes, communicating with the ships, receiving calls from the media for information on ships' times and loading conditions, calls regarding dangerous goods, the keeping of a log concerning statistics for sailings and numbers of vehicles, times and passenger counts, and ships' clearances.

She described the job as "very stressful". She said that in the summer they are usually working with overload conditions and that the lot is too small to fit full loads in for the vessels. She said:

It's very stressful. It's very hard to - to keep on top of everything. You can't really leave even for a minute when it's busy or you lose the thread.

She went on to say that it has:

been discouraging this summer. It's just - I've been trying so hard and learning stuff every day, and - and there's so much to know and I've been doing the best I can and always seems like there's something else that you - you're missing and - it's really tough.

Asked if she had raised this with her supervisor, she said she had and that he sympathized but said he thought she was doing okay. She said that she is the "most junior foot passenger ticket agent of the regulars on the terminal" and that of the regular people, she is the most junior tower operator.

The training manual used in the course she took in March of this year is dated February of 1991. That manual clearly sets out standard clearance procedures. I quote from pages 3-16 and 17 of that manual:

STANDARD CLEARANCE PROCEDURES

In clearing the vessel for sailing, the tower is the first step in a sequence of procedure. Because of possible safety risks to passengers and personnel, as well as damage to the vessel and the terminal, it is exceptionally important you follow these standard clearing procedures precisely and consistently.

The term "All Clear" when given from the tower, means "Shore All Clear" and is interpreted to mean that there will be NO FURTHER TRAFFIC SENT TO THE VESSEL.

You must follow this clearance sequence for every sailing:

1. Ensure the foot passenger ramp is up and clear of the vessel by verbal confirmation from the passenger ramp operator.
2. Ensure that the upper vehicle ramp apron is up and clear of the vessel, and the barrier is lowered. Confirm this, verbally with the upper ramp operator.
3. Upon completing steps 1 and 2, relay all further clearances of the vessel through the lower ramp operator by telephone/radio.

Following the tower's clearance, the lower ramp operator completes visual checks and lowers the ramp barrier. S/he informs the Lower Deck Loading Officer that the shore is clear, and awaits instructions from the Lower Deck Loading Officer to raise the apron.

The Lower Deck Loading Officer completes a further visual check of the passenger ramp and the upper car apron, then raises the lower ramp apron and lets go of the lines. S/he verbally transmits FINAL CLEARANCE to the Master.

Asked whether she knew the steps she was expected to take, the witness had no difficulty in saying:

We ensure that the foot passenger walkway is clear, the upper walkway is clear and give clearance to the main deck with the passenger count. The term "All Clear" from the tower operator means that the shore is clear and no further traffic will be sent to the vessel.

Asked whether she understood since taking the course that this was what she was supposed to do on the clearance check, Ms. Graves replied "I did this in the course".

Asked what is the normal practice, she testified that "in Departure Bay, because of the single wide upper car ramp, usually the main deck's full and just waiting for the upper, and we tell the main ramp they are clear when they've got clearance from their upper".

I observe here that in Departure Bay, unlike other major terminals, the upper car deck is loaded in single file because the ramp is not wide enough to take two vehicles at a time. This means, as the witness pointed out, that it is not uncommon for the lower car deck to be finished before the upper car deck has completed loading.

The tower operator testified that she started work at 7:30 a.m. August 13th, 1992. The tower operator ahead of her had been working since 4:30 a.m. and went for a break when she arrived. This meant that at the time of the clearance of the **Queen of New Westminster** shortly after 8:00 a.m., she was in the tower alone. She did testify that at some point she had a conversation with the assistant terminal attendant in the tower.

She testified that she does not recall hearing the clearance for the upper passenger gangway. Nor does she recall that after the top car deck was almost full someone requested more cars. She said that the assistant terminal attendant was up in the tower:

talking to me about the importance of keeping the Route 2 vessels on time, and plus some stuff about the first-aid room, and -I think he - he was just up there just after 8 just as I was finishing the load and I don't recall hearing that.

She did however, recall the clearance that she gave to the main ramp operator. She testified:

there were vehicles on the bridge and vehicles on the main ramp and I said okay, Howard, get what you've got on your main ramp on and with clearance from your upper you're clear with a count of 474.

I pause here to note that a comparison of this "clearance" with the sequence that is said to be essential in both the Tower Training Manual quoted above and in the standing procedures, discloses that those procedures were not followed.

Shortly thereafter, she heard on the radio the departure call "Queen of New Westminster away from Departure Bay berth 3" and she thought that it had come too soon. She realized that she had not heard the upper ramp operator's count yet and at that point she heard on the radio "car went into the water". She immediately called an ambulance, called the assistant terminal agent to the tower, and grabbed her first-aid pack and ran to berth 3.

Ms. Graves was the first-aid attendant on that watch or shift. I will not describe in detail her testimony with respect to her rendering of first-aid. I simply say that she was one of the key persons administering first-aid, and that she took control of the situation.

Mr. Howard Mutton

The next witness was the main ramp operator, Mr. Howard Mutton. He testified that he had been employed by B.C. Ferries since 1986, rotating through the ramp operation positions since 1987. He does not recall taking a course on ramp operation procedures although he recalls, when he first started, taking a familiarization procedure that lasted about two days. He also confirmed that he was required to read the Ramp Operations Manual, excerpts from which I have earlier quoted. Indeed, a Certificate of Review, which I have described above as the final page in that manual, was filed as an exhibit in these proceedings. That certificate says:

When completed have the trainee sign and date this document, remove this page and forward a copy to Personnel for filing and a copy to the Manager Terminal Operations.

The certificate filed had been signed September 25th, 1989, and Mr. Mutton confirmed that it was his signature.

He testified that he had read the manual shortly after he started operating ramps but that he did not review it in 1989 when he signed the document.

The ramp operator testified that he had been having difficulty with his radio during the loading of the 7 o'clock sailing. He said that after that sailing he got a new radio, checked it with the tower to see if they could hear him clearly, but that he had further trouble with the radio during the 8 o'clock sailing. However, he said that he clearly heard the clearance from the tower. He said the message received was "You are all clear with a passenger count of 478". He said that he did not hear anything about the upper vehicle ramp and apron. Asked if he had acknowledged the transmission, he said he repeated it

to the tower and the tower said that he was correct. Surprisingly, the ramp operator said that he does not always check that the upper ramp apron and the passenger ramp apron are clear of the ship before he passes the clearance on to the Chief. He said that is because the upper ramp apron is often not clear until after his lower ramp is clear.

Another exhibit in these proceedings is a copy of a large sign posted in the main ramp operator's control booth on the ramp. It states that:

After receiving final clearance from the tower operator and before relaying clearance to the vessels the lower ramp operator will:

- (a) visually check that the foot passenger ramp is up and clear;
- (b) visually check that the upper ramp apron is up and clear.

Nevertheless, Mr. Mutton testified that this is not the normal practice. He said the clearance often includes the phrase "with clearance from your upper then you're all clear".

The ramp operator was clear in his testimony that whatever clearance he received from the tower on August 13, he did not look at the upper apron and that he did not recall whether he looked at the passenger ramp apron. When asked whose responsibility it was, after receiving clearance, to look up and check the upper ramp he said:

Well, I believe it's written it's the tower's and the Chief Officer's.

He also testified that he did not see the Chief Officer make those visual checks on the 8 AM sailing on August 13th.

Mr. Mutton did testify that if he had heard the tower say "You're clear after the cars on the upper deck are clear", he would have checked the upper ramp apron. But of course his testimony was that he did not hear that as part of the clearance transmission.

On the morning of August 13, after he raised the lower ramp apron and put the ramp locking pins in place, he turned to his ramp control house to fill in his log. At that point he heard a lot of commotion and heard someone calling for a life ring. He then threw a life ring off the side of the ramp and helped retrieve an elderly woman from the water, assisting in taking her up a ladder.

He testified that he had been at home the night before and not been drinking as he is an abstainer and has not consumed alcohol since 1980. I pause to note there was no evidence, nor even a suggestion of any evidence, that alcohol or drugs were a factor in the performance of any of the individuals involved in this incident.

Finally, I observed that the essence of the ramp operator's evidence is that he did not accept that it was his responsibility to verify that the passenger and upper car deck loading ramps were clear of the vessel before he passed on the clearance to the deck loading officer.

First Officer Angus Anderson

Next, the 3 ship's officers involved August 13th testified. The first was the Chief Officer Angus Anderson, the lower deck loading officer on the day in question. He went to sea in 1953 as a deck hand and served as a deck hand and able seaman on deep sea vessels plying many parts of the world. In 1973

he came to Canada and commenced working for B.C. Ferries in 1974. In 1988 he became a Second Officer stationed in Swartz Bay and began relieving as a Chief Officer. Since June of 1992 he has been in the personnel pool in Tsawwassen serving as a Chief or Second Officer on both the Tsawwassen / Swartz Bay run and on the Tsawwassen / Departure Bay run. As of August 13th, 1992 he had done about fifty (50) trips on the Tsawwassen / Departure Bay run, two-thirds of those on the **Queen of New Westminster**, and on most of those trips relieving as Chief Officer. He testified that he was familiar with the **Queen of New Westminster** and with the Captain and crew of that vessel.

Mr. Anderson had no difficulty setting out the duties of the Chief Officer with respect to vessel clearance. He said that the ramp attendant gets clearance from the tower and transfers it to the Chief Officer. The Chief Officer, he testified, then checks that the foot passenger ramp is clear, the upper ramp is clear, the securing line is off, the lower ramp raised, and then gives clearance to the bridge.

He also testified that when he receives the verbal clearance from the main ramp operator, as a matter of practice he walks up to the ramp operator's control shack and has that conversation verbally. He said that once he has that conversation, he walks over to the side of the ramp to observe that the passenger ramp is up and that he then looks up to the upper car ramp. He agreed that he would be unable to check those ramps from his position on the ship, so he habitually does that from where he has the conversation with the main ramp operator, on the ramp, near the control shack.

He was asked specifically whether, when serving on the **Queen of New Westminster**, there was any difficulty in determining whether the upper car deck apron had cleared the ship. He said:

ANSWER: No, you can see the apron up; it goes up on an angle.

QUESTION: And you can see when it's clear of the vessel's deck?

ANSWER: Yah.

QUESTION: Even on the Queen of New Westminster?

ANSWER: Yes.

QUESTION: And it is your invariable practice to do that?

ANSWER: Yes.

Concerning August 13th, the Chief Officer testified that when the loading had been completed on his car deck, he approached the lower ramp attendant and asked if there was more traffic. He said that the lower ramp attendant told him "You're all clear, 474 passengers". He said he was familiar with this main ramp operator, having been there on the four previous mornings. He then testified:

I looked up to the left to check the passenger gangway, checked the top ramp, noticed it was just above the ship's plates there.

Asked to clarify what he saw when he looked at the upper car deck apron, he said that he saw a small space 4 to 5 inches "and I assumed that the apron had just raised clear of the deck". He made no enquiries at that stage, but went aboard the ship, signalled the seamen to let the lines go, waited until the main car deck apron went up and then called the bridge.

He testified that he said to the bridge, by telephone, "Were all clear aft, clear to sail, 474 passengers".

He then turned around to see to the closing of the ship's gates and saw a woman falling. He immediately ran back to the telephone, gave 5 buzzes (emergency signal), rang the telephone and reported people in the water.

He then proceeded to his emergency station which was to be in command of the emergency rescue boat. He recalls running to the boat but from that point he recalls nothing until the boat was in the water. His mind is blank, he said, with respect to his arrival at the designated emergency boat and its launching.

He did remember trying to row to the berth and said that progress was difficult. He testified that they seemed to be getting backwash from the ship and that they had "a terrible time" making headway.

He does not recall how long it took to get to the berth but when he did so, the RCMP were there and he asked how many people were in the water. He immediately radioed this information to the Captain of the **Queen of New Westminster**.

He was instructed to stand by until everyone was out of the water and in fact, he personally assisted in pulling one of the girls from the water. After all had been recovered from the water, he was ordered to return to the ship. The emergency boat was secured to the ship and he eventually went ashore with the ship's Master.

Second Officer Janice Lloyd

The next witness was the ship's Second Officer, Janice Lloyd. She joined B.C. Ferries in 1970 working up to the position of Chief Steward. In

1982 she transferred to the deck side starting as a deck hand and worked her way up and eventually became a Second Officer qualified to relieve as a Chief Officer. She joined this particular crew on the **Queen of New Westminster** in June of 1991 and has served under the same Master in the fourteen months since.

Ms. Lloyd testified that when in berth, the Master stays on the bridge and that the Second Officer proceeds to the loading end of the upper car deck to supervise the discharge and loading of cars.

As she has responsibilities on the bridge when the ship is leaving, she often leaves the upper car deck loading area about 5 minutes before the loading is complete. This is particularly so if there is an experienced seaman, and one that she knows and has faith in, at that position. The seaman on this day, as has been noted above, was an experienced seaman and she testified that she had full confidence in him. There was, as I pointed out earlier, no requirement that she remain until the upper car deck loading had been completed.

Ms. Lloyd said that when there were only about 6 vehicle spaces left to fill, she indicated to the seaman that she would be leaving for the bridge and he took over. She testified that on leaving:

I didn't have any negative feelings about it. I thought there is only a couple of more cars and everything is under control.

On arrival at the bridge, she commenced her preparations for departure, under the direction of the Master.

When the phone rang, she was the bridge officer who picked it up and heard the clearance from the Chief Officer on the lower car deck. She

recognized his voice. He said "Clear aft - 474". She repeated that message aloud to the Captain. She testified that the Captain hesitated for a few seconds and then said "Right, clear aft, 474". She confirmed that all of these transmissions were acknowledged.

Ms. Lloyd recalls logging the time of departure as 8:09 and said it was only a few seconds into 8:09. She picked up the radio microphone to call Vancouver traffic to let them know that the ship was leaving when she heard the 5 emergency buzzes sounded and then the telephone rang.

She picked up the phone and could not quite make out the conversation but did hear "Car in the water". She said there was then another 5 buzz signal. She said to the Captain "A car has gone off the ramp -- we've people in the water".

She testified she saw the Master zero the controls which she understood meant stopping the motion of the propellers. She and the Captain looked at one another for a fraction of a second and then he said "We've got people in the water - we can't back up" and ordered her to call a "mayday". She said that the vessel began moving very slowly in an arc and at the request of the Master, who had sounded the general alarm, she went out to check that the designated emergency boat was ready to launch. When she went out onto the bridge wing, she saw that it was already gone. She testified that the **Queen of New Westminster** stood by during the rescue operations, eventually recovered the emergency boat, and went into berth at 10:05.

Without hesitation, Ms. Lloyd testified that she had great respect for Captain Norman Mains, the Master of the **Queen of New Westminster** on that day. She said she had great confidence in him - he was very knowledgeable and that he made her feel confident. This quality was evident. She was an intelligent and forthright witness.

Captain Norman Mains

The final witness involved in the Departure Bay incident was Captain Mains. He joined B.C. Ferries in 1965, having served 4 years previously as a seaman on tugs on the west coast. He obtained his First Mate Certificate of Competency in 1968 and his Master's certification in 1972. He became a permanent Chief Officer with the Ferries in 1973, started relieving as a Master in 1974, and since 1978 has been a fulltime Master with B.C. Ferries. He has had no previous problem and never been disciplined or suspended. He confirmed that he had been the Master of this particular watch since June of 1991. He testified he was familiar with the ship/shore clearance procedures as set out in the Marine Operations Manuals.

Captain Mains testified that while the vessel is in berth discharging and loading vehicles and passengers, the Master's primary duties are on the bridge and he remains there throughout the entire turnaround period. He said that under full load conditions, it takes approximately 25 to 30 minutes to discharge and load vehicles at Departure Bay. He said that in Tsawwassen the time is a little shorter and that this is because there is a double-lane ramp on the upper car deck in Tsawwassen, but only a single lane at Departure Bay.

He had no difficulty reciting for the Inquiry the clearance procedures.

He confirmed that while on the bridge he cannot see the car loading ramps. He testified that he can observe the lower car deck ramp via the 9" black and white T.V. monitor on the bridge. He also confirmed that from the bridge wing he can see the foot passenger ramp.

The Captain said that his procedure is to have the Quartermaster report to him that the passenger ramp has been raised and that area is secured and the gates closed. He said that while the Second Officer is in charge of the vehicle loading on the upper car deck, the procedures did not require, and he did

not require, that the Second Officer remain at the loading station until such time as that upper vehicle apron is free and clear of the vessel. He understood that she would assign the end of the loading to responsible seamen.

He said it is normal for the Second Officer to be on the bridge and receive the telephone call from the Chief giving the final clearance. He requires her to repeat out loud what she hears on the phone and that he acknowledges it. Asked what acknowledging meant, he said that he does not repeat the message, but looks at the second officer, indicates he has heard it, and then listens to her as she repeats the message aloud back to the Chief.

He testified that when he hears the 'all clear' and the passenger count, he takes this as clearance from the Chief Officer that all ramps are up and clear, all lines are let go, and the vessel is free to proceed. This, he said, is his understanding of the Operations Procedures set down in Article 2.14.8 and quoted verbatim above.

He confirmed that the message always comes from the Chief Deck Loading Officer by telephone.

On the topic of scheduling, he testified that schedules on route 30 are easier to keep than on other runs because the **Queen of New Westminster** has a margin of speed that gives him a little bit more time to play with, providing he can work tides and winds in his favour.

Testifying about the events of August 13th, the Master said they were on the fifth day of the shift cycle. They had left Tsawwassen at 5:30 on their first sailing of the day and the 8 AM sailing was to be their first return from Departure Bay to Tsawwassen. He thought that on arrival they were 5 to 8 minutes behind schedule but that was not unusual with full load conditions. He said that they had the tide and wind against them on the way to Departure Bay and would likely have been able to make up the time when they were sailing the

other way. He confirmed that the Second Officer had been sailing regularly with him and that he thought of her as a highly qualified professional officer.

He also knew the Chief Officer, although he was a relief Chief Officer, and had known him and worked with him for a number of years. He said "I expected him to conduct himself as a Chief Officer, and I was confident he would do this". Specifically asked if he expected the Chief to conduct himself in accordance with what is set out in Article 2.14.8 of the procedures, he said "Yes". He confirmed that morning he was not feeling sick, that he was not on any medication, and had not been drinking alcohol. He testified that the unloading was routine with the exception of the one stalled vehicle.

He recalled the Quartermaster returning to the bridge that morning and reporting that the foot passenger ramp was up and secure. He did not recall exactly when the Second Officer arrived, but he did recall her receiving the phone call from the Chief. He said she lifted the phone and said "something to the effect of clear to sail and 474".

Captain Mains testified that 'clear to sail' meant to him that all ramps and aprons were clear of the ship, that all lines were let go, and that they were ready to proceed to sea. He testified that he then glanced at the video monitor and observed that there were no vehicles on the lower car deck apron or ramp.

He said that having received the clearance, he alerted the engine room. He noted that he is required, under the International Collision Regulations, to give one prolonged blast on the ship's whistle. He testified that he does that as a matter of course, and that he thinks he did on that morning but he cannot swear to it. He said that just as they were about to leave the dock, or starting to leave, he heard something to the effect on the radio of a vehicle on the ramp. He heard 5 short buzzes and immediately put the engines from "ahead" to "zero" and then put them to astern in an attempt to stop the vessel. He then heard that there were people in the water so instantly put the controls into the

"forward" position so that those in the water would not be sucked into the propellers, and then sounded 3 short rings on the general alarm bell. He believes that because of the momentum of the vessel moving forward, and because of the very brief period that he had it in reverse, the vessel did not stop but at all times maintained some forward movement.

He then sounded the man overboard alarm and ordered the emergency boat crew to their boat.

As the Second Officer testified, he then brought the ship around approximately 180 degrees and kept it there until it eventually returned to the berth.

That completed the evidence of the tragic incident at Nanaimo August 13, 1992.

Captain Chris Badger

The next witness was Captain Chris Badger, the Harbour Master for the Nanaimo Harbour Commission. As Harbour Master, he is responsible for the safety of operations and movement of vessels within the port. The port, of course, includes the Departure Bay terminal of B.C. Ferries.

Captain Badger started his career in Great Britain. In 1973 he was apprenticed to an ocean-going trading company and served four years as a navigating cadet. He received his Mates Foreign Going Certificate in 1977 and in 1978 joined the Royal Fleet Auxiliary, the supply and transport branch of the Royal Navy. In 1984 he received his Class 1 Master Mariner Foreign Going Certificate and in 1987 emigrated to Canada. He worked as Assistant Harbour Master in Vancouver and in June of 1990 became the Harbour Master in Nanaimo.

Captain Badger described the Nanaimo Harbour and, in particular, went through the Marine Emergency Response System. He stressed that the response to marine emergencies was a cooperative one involving various users of the Harbour, the fire and police departments and the Coast Guard Auxiliary Service.

He described how the City of Nanaimo has provided a fast boat for the Coast Guard Auxiliary Service, and that this boat is available, crewed by experienced seamen and divers, for quick response to waterfront emergencies. He entered as an exhibit the log of the Nanaimo Marine Rescue involvement in the August 13 incident. The fast boat, according to the log, was dispatched from its base at 8:15 in the morning and 13 minutes later a diver was underwater at the site.

Asked by Commission Counsel how the Harbour Master saw B.C. Ferries fitting into a marine rescue coordinated plan, he testified that he viewed them as a participant in a joint emergency program with resources that would be made available in time of an emergency. He said that he had reservations about individual agencies or institutions being self-sufficient with regard to emergency response.

He said there was a problem that equipment may remain locked up for a considerable amount of time and therefore be subject to maintenance problems, and that people using such equipment infrequently may, as a result, lack sufficient proficiency.

He testified that there is "a great benefit to be had by having a group such as the Emergency Program which can draw on resources of all these different agencies and trained people, and equipment which generally will be in a good state of repair".

It was evident from his testimony that a cooperative effort concentrating resources and personnel was, in his view, preferable.

Mr. Brett Joyce

The next witness was the President of the B.C. Ferry and Marine Workers' Union, Mr. Brett Joyce. I have already mentioned that Mr. Joyce was a member of the Operational Review Panel that reported to the Directors of B.C. Ferries on August 27 of this year.

The B.C. Ferry and Marine Workers' Union represents, and is the certified collective bargaining agent, for all of the employees of B.C. Ferries except those who are excluded because they are in management positions.

Mr. Joyce testified vive voce, and he also presented a written submission which was filed as an exhibit.

A reading of the written submission discloses that it differs, in its approach, with the oral testimony. The written submission is critical of B.C. Ferries in terms of its response to safety issues. It does not discuss the safety audit conducted jointly by management and the Union in 1990, nor the Operational Review which was also a joint project, and which was just recently completed.

However, in his oral testimony, Mr. Joyce was asked if those reviews are achieving the results he is seeking. He answered that he believes that the necessary information is getting to the Corporation through both the safety survey and the Operational Review. He further testified that he is of the opinion that the recommendations "have been given a reasonably high priority by the Corporation".

Questions were put to Mr. Joyce regarding some of the concerns raised in the written submission. There were also questions to subsequent witnesses directing them to specific parts of the written submission. I concluded that there were errors in the written statement and, I note, that some of it is

based on rumour or hearsay. As such, I prefer the viva voce evidence of Mr. Joyce. A number of the comments he made with respect to training, the use of radios, and the role of the Tower Operator, including changing that person's title from "Senior Ticket Agent" to "Tower Operator", were useful.

Mr. Sandy Kandall

The next witness was Mr. Sandy Kandall. Mr. Kandall is the Terminal Agent for B.C. Ferries at the Departure Bay Terminal, which means that he is the senior person at that terminal. He previously had a career which included being a train dispatcher with C.P. Rail and 13 years at Ocean Falls as the Services Manager responsible for both deep sea and coastal shipping. He joined B.C. Ferries in 1983, immediately assuming his present position.

The terminal employees who testified with respect to the August 13 incident were all people who report to Mr. Kandall.

The first topic covered by Mr. Kandall was the question of how well a person on the main or lower vehicle ramp is able to observe the upper ramp being lifted from the upper deck of the **Queen of New Westminster**. At the request of Commission Counsel, Mr. Kandall had stood alongside the main ramp operator shack at Departure Bay, a couple of days before testifying, to observe specifically the **Queen of New Westminster**. He was asked to observe carefully the clearance procedure and to undertake certain visual checks.

First, he testified that by walking about 18 feet up the main ramp from the hinge between the apron and the ramp, there was no difficulty in seeing the upper passenger gangway. Second, he said that from the ramp, in the vicinity of the ramp house, there was no question that he was able to observe the upper vehicle apron being raised from the deck. He noted that the deckhead was around 10 feet from the surface of the upper car deck and that the apron was able to be raised approximately 8 feet off the deck. He was able to testify

that there was no difficulty in determining whether that apron was clear of the vessel.

He also testified that subsequent to the August 13th incident, the Canadian Coast Guard suggested that when single-ended vessels are loading at the Nanaimo terminal, a ramp supervisor should be assigned to observe the upper car ramp and passenger ramp during the loading and should confirm, upon completion of that loading, that both these ramps have been lifted clear of the upper deck. This ramp supervisor would then proceed to the lower ramp, via the interior of the ship, and inform the Chief Officer and the lower ramp operator that the upper ramps are both clear.

He testified that step has been taken and will remain a requirement until such time as suitable alternative arrangements are in place for ensuring that all ramps are clear of the ship. The letter from the Coast Guard setting out this recommendation was filed as an exhibit.

As one of the authors of the Tower Operator's Manual used in training, the terminal manager was obviously familiar with the clearance procedures. Asked what steps he took to ensure the procedures are followed by staff, Mr. Kandall referred to the watch supervisor responsible for each shift who has, as part of his or her responsibility, the task of seeing policies and procedures are carried out. He also testified that once or twice a week he observes the process as it takes place at the dock level. As well, he testified that from time to time he visited the tower. Further, he testified that the Corporation's special advisor on operational safety and technical standards conducts, from time to time, an inspection of the procedures followed at various terminals. He entered as an exhibit a report of such an inspection which was conducted on July 13, 1992, at the Departure Bay terminal, although of a different crew than that which was working the morning of August 13. In that report, the loading procedures were said to be "in place" and the discharge procedures were said to be of an "acceptable standard". The report also

reviewed the tower operation and stated that clearance procedures were of an "acceptable standard".

Asked to comment on the workload of the tower operator, Mr. Kandall conceded that it is a heavy workload. He reviewed these responsibilities and said that some of the outside tasks that are carried out in part by the tower operator, might be transferred to another work location. However, he went on to testify that there is not another employee in the area of responsibility of the tower operator that could take on some of the operator's tasks. He also said that some senior ticketing staff would not go into the tower because of the pressure of the job.

As noted above, testifying earlier, the Union president had suggested that the title of the position of Tower Operator should be changed from its current "Senior Ticket Agent" to "Tower Operator". The manager testified that he was in favour of such a change.

Finally, the manager commented on his experience with the lock button on the hydraulics for the apron. He said that on his arrival at berth 3, shortly after the incident occurred, he looked at the upper car ramp. He said the first thing that crossed his mind was that a car could not have remained on the apron given its incline -- it would have slid off. But he did note that it was not in its fully extended downward position and that he therefore believes that it had been locked out. This was consistent with the evidence of the upper ramp operator described earlier.

He also agreed with the evidence of the tower operator that the operator cannot see the upper car ramp and that confirmation that the upper car apron is free and clear of the vessel must come from someone else.

Captain Thomas Whelan

The next witness, Captain Thomas Whelan, is the Operations Manager for the central and northern area which includes both the Departure Bay and Horseshoe Bay terminals. The terminal manager at Departure Bay reports directly to Captain Whelan. Captain Whelan went to sea in the British Merchant Marine at 16 years of age. He came to Canada in 1958 and worked with Northland Navigation until 1962 when he joined B.C. Ferries. He started as a seaman and went through various positions - eventually qualifying as a Master in 1966. He served fulltime as a Master from 1977 until he came ashore in his present position in 1984.

He gave evidence about the Langdale Terminal. This terminal is a double-deck terminal with an upper and lower car loading ramp. It is different than others, however, in that only one operator operates both ramps. Captain Whelan testified that the system could be in place at other terminals. He testified that he prefers that system because it is only one individual carrying out both functions. He said that if it is the lower ramp operator that lifts the upper ramp then he always knows whether it is up or down. He testified, however, that there had been resistance to using that system in other terminals because it would mean the elimination of the upper ramp operator.

He testified that he considers it positive to have fewer people involved rather than more. Other than that, he testified that the procedures in place had been developed over a period of time and fine-tuned. It was his opinion that the Corporation had arrived at the best possible set of procedures that could be devised, providing they were adhered to completely. As for following those procedures, he testified he had spent a considerable amount of time in the tower at Horseshoe Bay, both before and after the August 13th incident and that while he was there, the procedures had been followed.

On the subject of radios, he agreed that they present a number of problems. Asked whether he considered it prudent to have the final clearance

procedure conveyed as a matter of course by hard line telephone, he answered 'yes'. On the subject of fast rescue boats, he said that it would be "advisable" to have them on all major vessels.

On training, Captain Whelan testified that people training to be ramp operators or tower operators are already familiar with the process because they have worked in other positions in the terminal. They are first introduced to the foot passenger gangway and if they wish, progress to other positions.

As for the tower operator, he testified that they have in place the training manual for that position and noted that at the beginning of that manual is a self-assessment for individuals to assess their capabilities and attitude to determine whether they can handle such a demanding position. He testified that he would be reluctant to reduce the workload of the tower operators. He described them as the "nerve centre" of the terminal and said there were not, as far as he could see, any duties that could be taken away from them and still have them as the nerve centre. He agreed, however, that there should not be any need for them to take calls from the public.

Captain Michael Gray Recalled

On the final day of the hearing we heard from 4 witnesses. The first was Captain Michael Gray who was recalled to deal with two matters. The first of these concerned changes in the procedures since the August 13th incident. The second concerned an accident with the loading ramp at Denman Island. I will deal with that matter later, but will deal with the changes to the procedures now.

Captain Gray testified that on August 14th, 1992, after a meeting of the Board of Directors, all Masters were notified that in addition to the clearance procedures detailed in Article 2.14.8, and set out above, effective 16:30 hours on that day the Second Officer would be required to remain on the upper car deck until all the loading is complete and he or she has visually sighted

that the *upper cargo deck ramp* and the *main cargo deck ramp* are both clear of the vessel. Only then is the Second Officer to proceed to the wheelhouse and report those facts to the Master.

That directive, as stated, took effect at 16:30 hours on August 14th.

However, after comments by a number of Masters, the directive was amended on August 18th. Captain Gray testified that a number of Masters pointed out that on some ships, because of their design, it was not safe for the Second Officer to actually sight the main car deck ramp. As a result, the amendment was issued giving Masters the option of following the procedures set out in the August 14th directive, or of implementing a second option which is that Second Officers shall visually sight that the upper car deck ramp is clear of the vessel then proceed to the wheelhouse, and after the Chief Officer has telephoned giving clearance, sight, via closed circuit video monitor, that the main car deck ramp is clear.

It is this optional extra procedure that is now in place.

Second, Captain Gray testified that on August 20, 1992, it was determined, and Masters were so advised, that all major vessels are to be equipped with video cameras at each passenger gangway position and at both the bow and stern end of each car deck. Further, two split-screen 20 inch colour monitors will be installed in each wheelhouse which will enable the Master to view simultaneously these areas. Captain Gray testified that the first vessel has already been fitted with these cameras and monitors, and that work has started on the second.

He noted that the present black and white monitors on the ships' wheelhouses, which only show the lower car deck, are black and white screens of approximately 12 inches.

I will return later to Captain Gray's evidence regarding Denman Island.

Captain Jerry Mecham

The next witness was Captain Jerry Mecham, a Senior Port Captain with Washington State Ferries. He joined Washington State Ferries in 1969 as a porter and worked his way up until he got his Master's licence in 1981 and became a permanent Master in 1983. He is now the Senior Port Captain, and all Masters of Washington State Ferries report to him. He gave a description of the loading procedures at Washington State Ferries. They are quite different. In almost all cases the Master is able to observe the loading ramp. The ramp is raised and lowered not by terminal personnel but by an officer from the ship.

While we must exercise caution here because of the difference in the scale of the two Ferry systems, and indeed of the ferries themselves, Captain Mecham made some interesting observations. The main one was that he, like some of the previous witnesses, prefers to rely on fewer rather than more persons in the clearance procedures.

Asked if he had reviewed B.C. Ferries procedures, he said that he had and that:

It seems like there's an awful lot of people telling an awful lot of other people that a lot of things are clear.

He went on to testify:

I like what I heard from Captain Gray that the Second Officer goes to the bridge and verbally tells the Captain that the ramps are up, the lines are off, and the vessel is ready to go. That's an eyeball

verbiage, and that's almost foolproof. ... I don't mind trusting one. That one would be the person that knows his standing orders and obeys them.

Asked if he had his choice as to who that one person he trusts would be, he replied that it would be his First Officer.

I am grateful to Washington State Ferries for making Captain Mecham available to testify at this Inquiry.

Thomas Blyth

The next witness was Thomas Blyth, the Senior Project Manager for the new construction division of B.C. Ferries. He has been involved, for the last 2½ years, on the design of the two new large ferries, and the ramp systems for those ferries, as well as some other things that are involved in B.C. Ferries' current expansion plans. He has an engineering degree in Naval Architecture and Marine Engineering, came to Canada in 1960, and worked for shipyards in British Columbia and then the Coast Guard until joining B.C. Ferries in 1982.

He described the two new 470 car ferries (or 470 car equivalent ferries) and as well described the new ramp system. He pointed out that the new ramp has been in operation at one berth in Tsawwassen for 14 months.

It is apparent that this ramp is very different from previous ramps such as those used in other berths at Tsawwassen and Swartz Bay, and at the Horseshoe Bay and Departure Bay terminals. The new ramps are entirely hydraulic, they are not counter-weighted, but are operated by one hydraulic cylinder on each side of the ramp which takes the entire weight of the ramp. There are in fact 2 cylinders on each side, the second being redundant and there for safety reasons. There are no pins.

Further, both the upper and lower ramp and upper and lower apron are controlled by one person in a control booth set off to one side where he can observe both aprons.

Mr. Blyth testified that there were a number of reasons that these ramps were safer. These included the absence of pins that had to be removed and re-inserted during adjustment, the fact that the ramp adjusts automatically and therefore traffic does not have to be stopped and pressure does not result from getting behind schedule, the increased length of the ramp means long trucks or busses are less likely to 'hang up', and the fact that there are electronic sensors on the aprons which, should they lose contact with the ship's deck in the event of it leaving, automatically and instantaneously lock up the system.

He also testified that the loading procedures will be speeded up because the new ramps are much wider and permit double loading of commercial vehicles on the main loading ramp. With the traditional ramps, although they may load cars two abreast, commercial vehicles have had to load single-file.

Turning to the ships, Mr. Blyth testified that at all passenger and vehicle ramps there will be closed circuit television with colour monitors on the bridge. Further, as an additional measure, strobe lights will be installed at each passenger or vehicle ramp. The Captain, once he has received final clearance and is about to depart the berth, will be required to activate these strobe lights, and then pause for 30 seconds or more before actually moving the ship. The idea behind this is that these strobe lights will be placed at a position where they can be seen by both the ramp crews and the ships' crews. All crew will be warned, then, when they see the flashing strobe lights, that they have 30 seconds to clear the ramp if they have not already done so.

Significantly, Mr. Blyth testified that at the commencement of the design project, user groups were formed from both the terminal staff and the vessel staff. As an example, he said groups involved in the design of the new ramps were made up of user groups including people from the operational

department, the personnel department, and various groups that operate the terminals. He testified that some 120 people have been directly involved in user groups. This seems to me a commendable course.

Mr. Rod Morrison

The final witness in these proceedings was the General Manager of the B.C. Ferries Corporation, Mr. Rod Morrison. Mr. Morrison is a former Deputy Minister from the Northwest Territories who joined B.C. Ferries in 1982 and became the General Manager in 1987. He testified that since he joined the Corporation, there has been a shift in the direction of proceeding, on safety matters, in a partnership with Union and employee groups. He cited the 1990 Joint Safety Survey and the 1992 Operational Review, both undertaken by the Corporation and the Union, as examples of putting this policy into effect.

Directed by Commission Counsel to particular points in the Operational Review which reported in August of this year, he noted that on the subject of dissemination of operational directives, including clearance procedures, the joint committee, which included the President of the Union, concluded there were no deficiencies deemed critical in that area.

Mr. Morrison went on to describe three levels of safety committees at work in the Corporation. These are what he called 'lunchbox committees' or groups of people at the worksite, local safety committees that reflected geographic location, and a headquarters safety committee with equal partnership among management and union personnel and a chair rotating every six months between the two groups.

As a member of the Operational Review Panel, he was asked by Mr. Williamson if there were any submissions specifically relating to the clearance procedures set out in Article 2.14.8 and in both the Tower and Operator

Manuals as they might impact on the practice at Departure Bay. He recalled no such submissions.

On the subject of scheduling, and in view of the Operational Review statement that schedules should be reviewed to ascertain if some flexibility exists to make them less rigid, Mr. Morrison said that the Corporation has arranged meetings of the Masters in the early part of September to talk about the scheduling tightness and flexibility. He testified that as General Manager he has never supported or encouraged anyone to maintain a schedule for the sake of the schedule. Further, asked by Commission Counsel whether he has ever known of any financial incentive to anyone within the Corporation that would result from keeping schedules, he replied "absolutely not".

Mr. Morrison was the final witness, but subsequent to his testimony, two further documents were filed. The first was a submission from the Canadian Merchant Service Guild. This submission included observations and recommendations on the operation and control of the passenger ramp, of the upper vehicle ramp, of the lower vehicle ramp and of ship clearance procedures generally. Further it discussed training, multiple licensing and fast rescue vessels.

The affidavit prepared by Mr. Askew was delivered to Commission Counsel by his counsel, Mr. J. Straith. Mr. Williamson read that affidavit into the record.

Finally, on the matter of evidence, I turn to two other incidents which were discussed in the Inquiry. Both of these incidents were described by Captain Gray, who was the Chairman of the internal investigation undertaken by the Ferry Corporation of these two incidents.

DENMAN ISLAND, August 10, 1992

The first incident took place August 10, 1992 on Denman Island. I note that the vessel involved was much smaller than the major vessels involved in the principal Vancouver Island mainland routes. In this case, the ship, the 'Quinitsa', is a double-ended open deck ferry, 74.5 metres long, and carrying a crew of six. It has a single wheelhouse, with controls facing each way.

Captain Gray testified he found that on Monday, August 10th the vessel was to leave Denman Island shortly after 10:30 in the morning. The crew completed loading the waiting vehicles and at the scheduled sailing time the mate said "Okay, time to leave", and took the bow line off, then proceeded to the ramp shack and turned on the red light before proceeding up the ramp to close the gate. When asked who had removed the pins, the mate answered that he wished he could recollect but assumed that one of the deckhands had. At this point further traffic had approached the terminal. The Master so informed the mate and he allowed further traffic to board the vessel without incident. The last vehicle was a logging truck. It was allowed to proceed down the ramp towards the vessel when without warning the ramp dropped slowly into the water. The truck and trailer were embedded in the mud and the ramp settled on the bottom. No one was injured.

It transpired that the pins which support the ramp, in the manner in which I have described earlier in this report, had been removed when preparations were initially made for the vessel's scheduled departure and had not been re-inserted prior to the additional traffic being loaded. Because of the key witnesses' inability to recall, there can be no clear conclusion as to which individual removed the pins.

Captain Gray testified it was the opinion of the panel that the accident resulted from a lack of adequate supervision of the loading and clearance procedures. They also observed that had the Master maintained his

observation from the Bridge throughout discharging and loading processes, it is possible he would have observed the pins being removed.

WESTVIEW, August 14, 1992

The second internal investigation involved the M.V. Queen of Sidney departing prematurely from the Westview terminal on August 14, 1992, just one day after the incident in Nanaimo.

Captain Gray testified the panel determined that at the conclusion of the loading, but before final clearance had been given, the Master on the bridge heard the Second Officer, who was standing outdoors on the bridge wing, say "clear aft". Having heard that, the Master looked at the television monitor, saw no traffic on the lower ramp, and departed the terminal. There were no cars on the ramp or the apron and there were no injuries. The safety lines securing the vessel to the berth parted.

It transpired that the Second Officer had not said "All clear aft", but rather had asked "Are you all clear aft?".

Although this is a single car deck vessel, when one compares what happened on this incident to the standing procedures, it is apparent they were not followed. First, it is only the Chief deck officer that is authorized to give the final clearance. Second, that clearance is only to be given by telephone. Third, proper radio discipline, as we heard in the testimony, requires such critical communications be acknowledged.

What is above is a brief review of the evidence of twenty-one witnesses and documentary evidence. It in no way purports to set out all of the evidence, but rather indicates some of the relevant evidence I consider to be important in understanding the thrust of some 1,000 pages of testimony.

ANALYSIS AND RECOMMENDATIONS

In making recommendations, I have generally been guided by four underlying considerations:

1. I accept the general proposition that it would be preferable to have fewer people involved in direct communication concerning final clearance.
2. I accept that actual visual sightings are best and that electronic or mechanical checks should only be supplements.
3. I accept that where possible procedures should require individuals to be in a position where they can make the critical visual physical observations, and
4. I accept that for a number of reasons wireless radio transmissions should not be utilized for critical clearance communications.

I turn first to the procedures set out in the Marine Operations Manuals. I take as my starting point the fundamental rule that the lower vehicle ramp and apron are never to be raised from the ship's deck when the upper ramps are still connected to the vessel. This is key to the clearance procedure.

I would, however, change somewhat the shore clearance procedures and ship clearance procedures set out in Article 2.14.8. I think it essential to remove at least one person from the chain of communications for final clearance. I think also that it is important these critical communications be by hard wired telephone.

I see the procedure operating as follows. Once the tower operator has confirmed by telephone that both the passenger gangway and the upper vehicle apron are free and clear of the vessel, he or she will telephone the lower ramp operator. There is already a telephone in each ramp operator's control house connected to the tower. The tower operator, on reaching the lower ramp operator, will ask that individual to confirm that both the passenger ramp and the upper car vehicle apron are free and clear of the vessel.

Once the lower ramp operator had confirmed that, rather than give the clearance to the lower ramp operator, the tower operator will say "Give me the lower deck loading officer". I note the lower deck loading officer is the Chief Officer, second in command of the vessel.

The lower deck loading officer will then be required to walk off the vessel onto the apron and ramp, pick up the telephone in the ramp operator's control house, and speak directly with the tower operator. The tower operator will then inform the Chief Officer that the vessel is clear and will give the passenger count.

The lower deck loading officer will still be required to verify visually that the passenger gangway and the upper vehicle apron are free and clear of the ship. Only then will that officer return to the vessel, and having made the other necessary checks, telephone the bridge confirming all ramps are free and clear, and that the ship has clearance to sail.

What I have described above has the virtue of:

1. Eliminating the lower ramp operator from the direct communication of the clearance;
2. Requiring the lower deck loading officer to move out onto the ramp where he or she is in a physical position to make visual

observations of the passenger gangway and the upper vehicle apron; and

3. Mandating the use of the telephone and thereby eliminating the dangers inherent in wireless communication.

I would therefore amend Article 2.14.8, paragraphs 3 through 8 to read along the following lines:

SHORE CLEARANCE PROCEDURES

- The control tower operator shall ensure that the foot passenger ramp is up and clear of the vessel and the barrier lowered. This must be confirmed by telephone from the passenger ramp operator.
- The control tower operator shall ensure that the upper vehicle deck apron is up and clear of the vessel and the barrier lowered. This must be confirmed by telephone from the upper ramp operator.
- Upon completion of the above steps, the control tower operator will contact the lower ramp operator by telephone.
- On contacting the lower ramp operator by telephone, the control tower operator will ask the lower ramp operator if both the passenger ramp and the upper car deck vehicle apron are clear of the vessel.
- Upon receipt of that confirmation by telephone, the tower operator will ask to speak with the lower deck loading

officer. Upon receipt of that request, the lower ramp operator will close the lower ramp barrier, and then call for the lower deck loading officer.

- The lower deck loading officer will walk to the main ramp operating house, take the telephone, and communicate by way of that telephone with the tower operator.
- The tower operator will give the lower deck loading officer the 'all clear' together with the passenger count.

SHIP CLEARANCE PROCEDURES

- Upon receipt of the above shore clearance directly from the tower operator by telephone, and having visually checked that the foot passenger ramp and upper vehicle ramp are free and clear of the vessel, the lower deck loading officer (Chief Officer) shall order the raising of the lower ramp apron, let go lines and transmit final clearance to the Master.
- This should be carried out in a clear and unmistakable manner identifying the speaker as the lower deck loading officer, stating specifically that the passenger ramp, the upper car deck apron, the lower car deck apron are free and clear, stating that the vessel is cleared to sail, and giving the passenger count.
- The bridge officer will acknowledge the final clearance message by repeating it in its entirety.

IN SUMMARY:

RECOMMENDATION 1

The tower operator must communicate the clearance directly to the Lower Deck Loading Officer.

RECOMMENDATION 2

This communication must be by hard wired telephone.

RECOMMENDATION 3

The Lower Deck Loading Officer must receive this communication via the telephone in the main ramp operator control house.

I would leave it to the Corporation to settle upon the actual wording of these procedural rules.

While I agree that it is the visual sighting that is most important and therefore consider the amendments to the procedures which I have proposed above as the essential components of the clearance procedure, I believe electronic means can be used as a supplement or enhancement. I would therefore propose the following two additional safeguards.

First, there should be a light in the wheelhouse connected via a single circuit to the passenger ramp, the upper car deck ramp, and the lower car deck ramp. This circuit should be wired so that there is one switch beneath each of these aprons -- all three of which would have to be closed before the lamp could light. These switches would be activated by a key, and access to

the switches would be physically impossible while the relevant apron was on the ship's deck.

The crew member with the key would be able to have access to the switch to close it only if the apron were free and clear of the vessel. Thus, as each apron is lifted, the senior officer, or in the case of the passenger gangway the Quartermaster, will insert the key and close the switch. Only when all three are closed will the light go on in the wheelhouse indicating to the Master that all ramps are free and clear of the vessel.

RECOMMENDATION 4

That a single lamp on a single circuit containing three key operated switches, accessible only when ramp aprons are free and clear of the vessel, be installed on the Bridge of all major vessels in the B.C. Ferry fleet.

Second, it is appropriate that there be some form of "feedback" to the crew once the Master has determined that he or she has final clearance and is about to depart the terminal. Given the noise level inevitably accompanying loading of vehicles, the ship's whistle is not suitable for this purpose. I refer, therefore, to the evidence of Thomas Blyth regarding the proposal to put strobe lights at all passenger and vehicle access points on the new "470" ferries.

RECOMMENDATION 5

On all major vessels, a strobe light be installed at each passenger and vehicle access point in a position where it will be visible by both the ship's crew and the ramp crew, and that at least thirty (30) seconds before departing the berth, the Master will activate

the strobe lights as a warning to crew and terminal staff alike, that the vessel is about to depart.

I now turn to the role of bridge personnel in clearance. I have heard testimony that it is the Quartermaster who is at the ship side of the passenger ramp during loading, and that he or she has duties on the bridge during departure. Because he or she does not leave the upper passenger gangway until it is free and clear, the Master of the vessel is able to receive direct verbal communication from the Quartermaster that indeed, the passenger gangway is clear. I understand that this is a practice; I recommend that it become a rule.

Similarly, on multi-car decked vessels, I would make permanent the recent rule that the Second Officer remain on the upper car deck until such time as he or she has observed the upper car deck apron is free and clear of the vessel, and only then report to the bridge.

RECOMMENDATION 6

That the Quartermaster remain at the upper passenger gangway until it is free and clear of the vessel and that he or she then report to the Master on the bridge.

RECOMMENDATION 7

That the Second Officer remain on the upper car deck apron area until such time as that apron is free and clear of the vessel and then report to the Master on the bridge.

Video Monitors

Captain Gray, as noted above, testified that on August 20 of this year, all B.C. Ferry Masters were notified of the decision to equip all major vessels with video cameras at each passenger gangway and at the bow and stern of each car deck. As well, two split screen 20" colour monitors, to be installed in each wheelhouse, will enable the Master to view simultaneously these critical positions. I was told that one vessel has already been so equipped, that work has started on others.

Given the testimony I have heard, I recommend that this policy be implemented as quickly as possible.

RECOMMENDATION 8

That the decision to install video cameras at all access points, with split screen colour monitors in each wheelhouse of major vessels, be implemented forthwith and remain permanent policy.

Tower Operator

There remains the question of the workload of the Tower Operator. Mr. Warren, the Horseshoe Bay operator, agreed it was "busy" but seemed to find it manageable. Ms. Graves, the Nanaimo operator, found it more difficult. She testified:

It's very stressful. It's very hard to keep on top of everything. You can't really leave even for a minute when it's busy or you lose the thread.

Mr. Kandall, the Nanaimo terminal manager, agreed it is a heavy workload, but could not come up with another position to take over some of the tower tasks. He agreed with Warren and Graves that sometimes the tower operator is answering questions from the public, and he also agreed with Union President Brett Joyce that the tower operator, officially known as a "Senior Ticket Agent", should in fact be called a "Tower Operator".

Captain Whelan described the tower operator as "the nerve centre of the terminal" and said there were not any duties they are carrying out now that could be taken away and have them remain "as the nerve centre". But questioned by Commission Counsel, he agreed that it is not acceptable for tower operators to take telephone calls from the public.

The workload of the tower operator, as it was described by various witnesses in this inquiry, concerns me. I do not accept that a person handling such a critical task should be distracted by telephone calls from the public, and I suspect there may be other ways to concentrate the tower operator's tasks on what is crucial.

RECOMMENDATION 9

That the tower operator position be entitled "Tower Operator", and the corporation management, in cooperation with experienced tower operators and the Union, immediately review the workload of the position and implement changes designed to remove any responsibilities not directly concerned with traffic control and loading and clearance procedures.

With these recommendations in place, I do not think it necessary to continue the interim measure of having a shore supervisor on board during the loading procedures.

Fast Rescue Boat

I turn to the subject of fast rescue boats. It is apparent from testimony at this Inquiry, and as a result of reading both the May 1990 Joint Safety Audit and the 1992 Operational Review, there is a consensus that fast powered rescue boats should be installed on all major vessels of the fleet. I agree, and would not wait until such time as vessels may convert from standard lifeboats to life rafts.

RECOMMENDATION 10

That fast powered rescue boats be installed on all major vessels in the B.C. Ferry fleet.

I turn to the subject of monitoring. It is evident, as a number of witnesses pointed out, that procedures are of little value if not followed. I have heard some testimony regarding steps taken by supervisory personnel to ensure standing orders are implemented. In my view, these random checks are inadequate. It is essential that the corporation institute forthwith a regular system of frequent monitoring of clearance procedures and practices at all terminals.

This step probably requires the creation of a new position specifically concerned with such verification. Further, the existence of regular monitoring should be known to all employees involved in vessel clearance procedures. This "visible policing", coupled with strict enforcement, should drive home the necessity of precise application of critical procedures.

The individual charged with this responsibility should report to someone with corporate wide authority, possibly the assistant general manager

for operations. Of course, the existing responsibility of line supervisors to ensure procedures are followed must remain in place.

RECOMMENDATION 11

That a regular system of frequent monitoring of clearance procedures be implemented forthwith, such system being known to employees, and being within the jurisdiction of a person with corporate wide authority.

Finally, I return to the incident on Denman Island August 10. In that case, vehicles were loaded onto one of the smaller ferries without the critical "locking pins" being inserted to support the ramp. It would seem essential there be some clear visual indication to the crew that the locking pins are, or are not, in place. Obviously, as Captain Gray has pointed out, if proper supervision had been undertaken, it would have been known to the officers that the pins had been removed and not replaced. It is manifest a supplemental verification is required at terminals where there are no shore based personnel.

I would therefore have the B.C. Ferries engineering department develop a mechanical signal operated at the same time and as part of the pins' insertion mechanism, providing a clear visual indication by way of a flag, barrier, or other marker, placed on or about the ramp's vehicle lanes, indicating that the pins are or are not in place.

RECOMMENDATION 12

That B.C. Ferries install a mechanical signal connected to the pin insertion mechanism, clearly visible on the ramps, indicating the position of the locking pins.

There remain two issues which concern me, but which I do not believe on the evidence before me and given the time constraints of this Commission of Inquiry I am able to resolve. These are the questions of scheduling, and of scuba equipment on B.C. Ferry vessels and at B.C. Ferry terminals.

Scheduling

I accept the observation in the Operational Review, page 11, that schedules should be reviewed to ascertain if some possibility exists to make them less rigid. I note also Mr. Morrison's evidence that meetings are set for this Fall to consider these issues. I would, however, put it on a stronger footing. I think it essential that the Corporation set up a task force including management, the Union and one or two outside persons to review the issue of scheduling and its relation to safety. This must include the impact that tightly crowded terminals such as Horseshoe Bay and Departure Bay have on turnaround times, the impact of the single lane upper car deck loading ramp at Departure Bay, and the effect of the absence of passenger loading gangways at Horseshoe Bay. Certainly I would not restrict the committee from considering other relevant factors. I would set a strict deadline for this task force to report to the Board of Directors of B.C. Ferries and I would suggest that this could be done within six months.

RECOMMENDATION 13

That a joint task force review scheduling and its impact upon safety, including the factors of crowded terminals, the single upper ramp bridge at Departure Bay, and the lack of a passenger gangway at Horseshoe Bay, and report to the Directors within six months.

Scuba Equipment

The second issue which I cannot resolve, is that of scuba equipment. I accept the evidence of Captain Badger, the Harbour Master for the Nanaimo Harbour Commission, that there is much value in a pooling of resources in support of a small group of highly trained professionals with a pool of regularly maintained equipment. I see considerable danger, in an emergency situation, in too many people being involved in underwater rescues. But I also recognize, and common sense dictates, that in the case of persons trapped inside a vehicle underwater, the quicker the response, the better the odds of survival and of meaningful survival. This issue requires more study than is possible for me in this Inquiry.

RECOMMENDATION 14

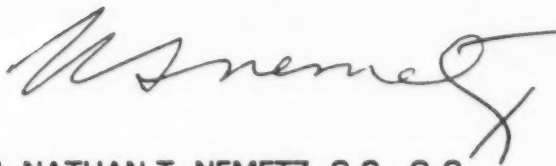
That the Provincial Emergency Plan Authorities convene a task force made up of the various agencies involved in waterfront emergency plans, and including the major users of harbours in British Columbia, to review the question of the provision of underwater lifesaving personnel and equipment.

I similarly recommend that this task be undertaken and completed within six months.

I add one comment regarding the recommendations in the joint Operational Review delivered to B.C. Ferries in August of this year. The authors of that report suggest, at page 5, that the Corporation should report to its Directors within eighteen months on the measures taken and the progress made in response to their observations. I am of the view this is far too long, and would recommend that such a report be made within six months.

Finally, Mr. Minister, I hope that the recommendations I have made for enhancing the safety of loading and clearance procedures will be of assistance to you in helping to achieve the goals set out in the B.C. Ferry Corporation's mission statement; i.e. "to provide effective, dependable and safe coastal ferry transportation service in the most efficient manner".

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'N. Nemetz', with a large, stylized flourish at the end.

THE HON. NATHAN T. NEMETZ, C.C., Q.C.